

SOUTHEAST COMMUNITY COLLEGE
CONSTRUCTION, MANUFACTURING AND TECHNOLOGY DIVISION
Energy Generation Operations Technology Program
Revision Date: August 21, 2023
[Syllabus Statements](#)

I. CATALOG DESCRIPTION

Course Number: ENER1110
Course Title: Operator Safety
Prerequisite(s): None
Catalog Description: Operator-based safety topics including: OSHA 10 hour general industry certification, human performance tools, personal protective equipment, ladders, body harnesses, confined space, lock-out/tag-out, GHS, and fire extinguishers. Students will perform a supervised climb with fall-arrest-protection to above 20 feet. This course also provides aerial lift & forklift training, arc flash awareness, and industrial accident case studies. Lab must be taken concurrently.

Credit Hours: 3
Class Hours: 38
Lab Hours: 23
Total Contact Hours: 61

II. COURSE OBJECTIVES: *Course will:*

- A. Introduce the student to industrial safety crucial in any hazardous plants such as electrical, oil and gas and nuclear plants.
- B. Provide instruction in the prevention of accidents through the use of human performance tools, checklists and procedures.
- C. Introduce the student to safety equipment and devices commonly used in the protection of personnel on the job.
- D. Introduce the proper selection, use and care of personal protective equipment.
- E. Provide the student with tools to recognize and correct potential hazards associated with plant operations.
- F. Familiarize the participant with the Globally Harmonized System (GHS) of hazards communication.
- G. Provide students with multiple case studies, research requirements, videos, and class discussion on historic industrial and environmental accidents and their causes.
- H. Provide an opportunity for students to become certified to operate a forklift and man lift.
- I. Provide students with opportunities to increase their knowledge of arc flash safety.

III. STUDENT LEARNING OUTCOMES AND GENERAL EDUCATION LEARNING OUTCOMES:

- A. Student Learning Outcomes: *Student will be able to*
 - 1. Understand the reasons for safety in the workplace.
 - 2. Explain how to use Personal Protective Equipment for all work situations.
 - 3. Demonstrate and use a Fall Arrest System.
 - 4. Complete the OSHA 10 hour General Industry course and receive a certificate of completion.
 - 5. Understand and demonstrate the proper use of a forklift, aerial life, overhead and jib crane.
- B. General Education Learning Outcomes (GELOs)
 - 1. GELO #3: Critical Thinking & Problem Solving

Outcome 2: Synthesize information to arrive at reasoned solutions to problems.

IV. CONTENT/TOPICAL OUTLINE

- A.** Human Performance Tools
 - 1. Introduction
 - 2. Critical decision making
 - 3. Risk recognition
 - 4. Coaching
- B.** OSHA 10 hour General Industry
 - 1. Face-to-Face 10 hour certificate program of instruction
- C.** Ladder Safety
 - 1. Types of ladders and uses
 - 2. Safe use of each ladder type
 - 3. Training certificate from American Ladder Institute
- D.** Personal Protective Equipment
 - 1. Types of PPE
 - 2. Uses and Limitations of PPE
- E.** Body Harness
 - 1. Components of a Body Harness
 - 2. Limitations and correct usage
 - 3. Perform inspect, don and doff of full body harness
- F.** Fall Protection
 - 1. Explain Fall Restraint and Arrest and Associated Components
 - 2. Explain Work Procedures/Fall Protection Planning
 - 3. Perform a Fixed Ladder climb
- G.** Confined Space
 - 1. Definition of Confined Space
 - 2. Confined Space hazards
 - 3. Confined Space safety procedure
 - 4. Perform a Confined Space entry
- H.** Lockout/Tag-out
 - 1. Definition of LOTO
 - 2. LOTO procedures
 - 3. Perform a LOTO
- I.** Hazard Communication/Right-to-Know
 - 1. Interpret and apply the Globally Harmonized System (GHS)
 - 2. Understand and apply the concepts of hazard communications
- J.** Portable Fire Extinguishers
 - 1. Define and identify types of portable extinguishers
 - 2. Define and identify types of fires
 - 3. Uses for each type of portable fire extinguishers
 - 4. Perform a portable fire extinguisher activity
- K.** Elevator Design and Rescue
 - 1. Discuss common elevator types and designs
 - 2. List common elevator components
 - 3. Understand the required procedures involved with elevator rescue
- L.** Rigging and Crane Safety
 - 1. Define components of a crane
 - 2. Understand Rigging basics
- M.** Case Studies from “The Industrial Operator’s Handbook”
 - 1. The nature of industrial failure

2. Strategy for operating success
 3. Vital operating skills
 4. View select industrial accident/incident videos
 5. Discuss select industrial accident/incident case studies for the text book
- N. Aerial Lift, Forklift training-material from National Safety Council & Nebraska Safety Council
1. Complete the training video and quiz
 2. Perform the forklift operator practical
- O. Arc Flash training
1. Basic electrical safety
 2. Arc flash 70E requirements
 3. Perform inspection, don and doff of arc flash suit

V. INSTRUCTIONAL MATERIALS

- A. Required Text(s): Howlett II, H.C., *The Industrial Operators Handbook* and National Safety Council: *Coaching the Lift Truck Operator*
- B. Other Resources: Instructor provided, Internet, classroom activities
- C. Outside Reading/Research required: Internet Research assignments
- D. Supplies:
1. 3 ring binder with blank paper for notes
 2. USB Flash Drive
 3. Reusable Ear Plugs
 4. Safety Glasses
 5. Hard Hat (Class E minimum)
 6. Leather Gloves
 7. Safety Shoes
 8. OSHA 10 hour General Industry safety subscription

VI. METHODS OF PRESENTATION/INSTRUCTION

- A. Methods of presentation typically include a combination of the following:
1. Instructor-led learning activities
 2. Assigned research projects
 3. Homework assignments
 4. Quizzes and tests

VII. METHODS OF EVALUATION

- A. Methods of evaluation, although determined by the individual instructor, traditionally includes a combination of the following:
1. Class participation
 2. Regular assignments
 3. Written exams and/or quizzes
 4. Performance and observational assessments

VIII. SPECIFIC COURSE REQUIREMENTS

- A. A minimum grade of "C" or 70% is required to receive credit for this course.
- B. A minimum grade of "B" or 80% is required to achieve the NUCP certificate, in accordance with ACAD 08-006, Revision 1, dated October 2016
- C. Cheating within the Manufacturing Division: Any violation of academic integrity on assignments, quizzes, or tests will result in a grade of 0 on that assignment, quiz, or test. A second violation in any course after the initial infraction will result in a grade of F for

that course. Any additional violations while in the program will result in a suspension from the program. For additional information, refer to the *Academic Integrity* pamphlet available from Student Services.

- D.** Credit by Examination: Credit for the course CANNOT be earned through Credit by Examination.